

2.2

Jumping Rope

Goals

- Compare two distributions displayed using back-to-back stem-and-leaf plots
- Compare two distributions using statistics, such as median, range, and how the data vary from least to greatest values
- Identify outliers in a distribution

You may choose to investigate the problem using the data provided, or you may want to help your students conduct their own jump-rope activity and collect their own data. If your class conducts the activity, you will need to develop procedures for collecting the data. (Be aware that collecting these data is time-consuming!) You might ask the physical education teacher to help your students collect the data during their physical education class.

You may want to explore the problem using the data presented in the Student Edition and then extend the exploration phase to include your students' data, making comparisons where appropriate.

Launch 2.2

Present the problem by using Transparency 2.2 or by referring students to the Student Edition. Work with your students to make sure they can read the back-to-back stem plot before they begin to work on the problem. One way to do this is to cover the left side of the stem plot and ask students what information is shown on just the right side. Then cover the right side, and have students discuss how the data on the left side are read (when the stem is on the right). Finally, you can show both sets of data together, discussing how this arrangement lets you make comparisons between data sets.

Have students work in pairs or small groups.

Explore 2.2

Once students are comfortable with the data display, they can focus on the questions posed in Problem 2.2.

Suggested Questions For students who need support in answering Question A, ask:

- *What statistic might help you compare the class's jump roping?* (If necessary, remind them of the statistics that they talked about in Problem 2.1. For each statistic they mention, ask them why they chose this statistic and what it might tell them about the data. Try to have them realize that the median, how the data vary from the least to the greatest values, and range are very useful to compare data, and the mode may not be as useful.)
- *How would you find that statistic using the data?* (Depending on the statistic they choose, you will need to ask them questions to help find the specific statistic they chose.)

Summarize 2.2

Hold a class discussion about Problem 2.2. The process of comparison may be difficult. Students may wonder how they can compare data sets that contain different numbers of data items. They may not immediately think about finding the medians, the least and greatest data values, and the ranges of the two classes' data, yet these are precisely the tools that can help them make comparative statements.